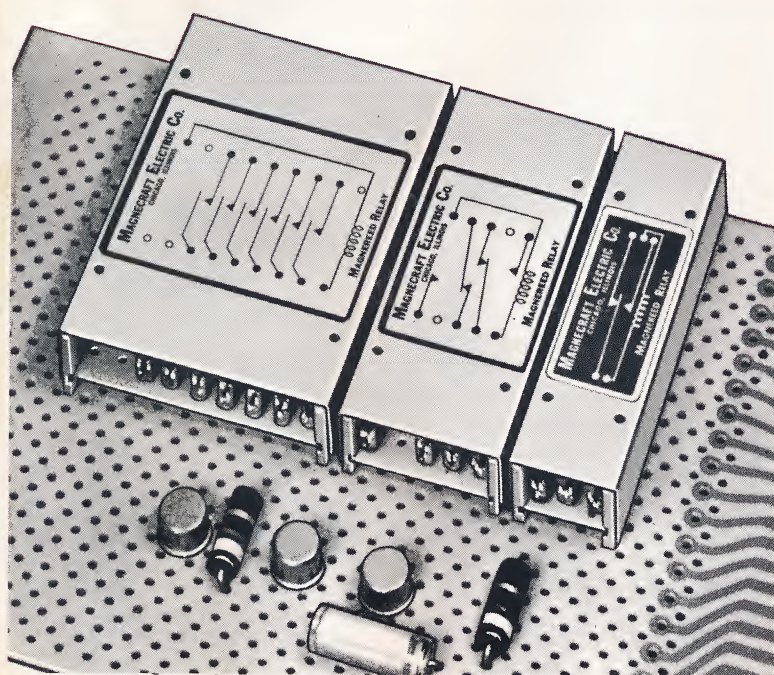


Product Data Bulletin, Number 661



From 1 Form A or C to 7 Form A or 4 Form C, Magnecraft low profile MPC Reed Relays are the perfect answer to virtually any printed circuit switching requirements.

Uni-Packs or Multi-Packs, here's flexibility for nearly every PC problem!

Magnecraft's family of MPC Modular Printed Circuit Reed Relays is the most versatile reed relay concept available to the printed circuit design engineer. It is a concept that makes available, in a single reed-coil package, ruggedly built, reliable SPST and SPDT mercury-wetted and dry reed, power reeds, magnetic latching reeds and high voltage reeds. It provides three individual package designs that allows almost unlimited combining of basic reed switches to obtain virtually any contact configuration from SPST or SPDT to 7PST or 4PDT. It includes standard designs that are immediately available from stock or special order capabilities that assure prompt delivery of custom built units.

The MPC concept offers more than just versatility alone: it offers operating times of 3 milliseconds or less; life expectancies of more than 1,000,000,000 cycles; contact ratings fully consistent with typical printed circuit applications; and, mechanical construction that meets the industry's highest standards of shock and vibration resistance.

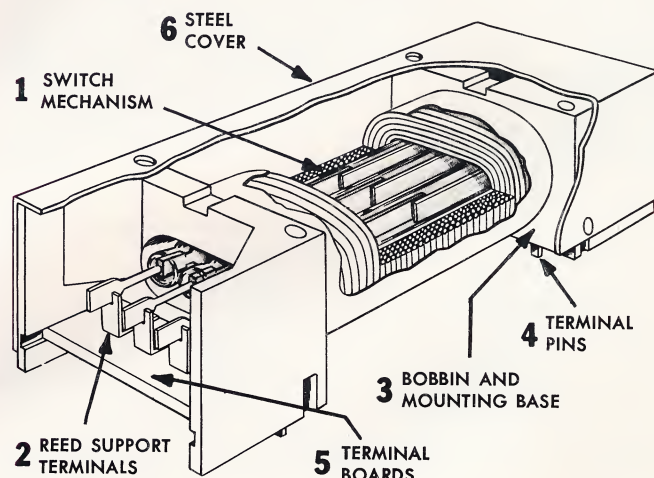
MPC Reed Relays have been designed to provide the contact configuration flexibility previously available only in larger telephone type relays. The MPC Reed Relays are the ideal relays for compact designs that require maximum performance, reliability and versatility . . . at minimum cost!

RELIABLE MPC REED RELAYS for Printed Circuit Applications

The reliability built into the MPC Modular Printed Circuit Reed Relays is the result of painstaking engineering, rigid production quality control, exhaustive testing and the efforts of dozens of people dedicated to maintain the superiority of Magnecraft products. Thousands of MPC Reed Relays in daily failure-free operation have proven the success of Magnecraft in building *reliable* relays!

Design features that assure reliability!

- 1. SWITCH MECHANISM.** The switch mechanism is hermetically sealed within a glass capsule filled with inert gas; contacts and reeds are completely protected from contamination and tampering.
- 2. REED SUPPORT TERMINALS.** The support terminals are rigidly riveted to the terminal boards and soldered, stress-free, to the switch leads; switch adjustments and performance cannot be affected by external stresses.



3. BOBBIN AND MOUNTING BASE. The integrally molded Nylon bobbin and mounting base provides maximum electrical insulation and mechanical protection for the switch capsule, coil leads and terminal boards, mortised into the molding for maximum rigidity.

4. TERMINAL PINS. Pins are spaced on 0.2 inch centers for easy, rapid assembly to printed circuit boards; no special design work is necessary. Wire pin extenders are available on special order.

5. TERMINAL BOARDS. Rugged epoxy terminal boards have riveted terminals and are mortised into the Nylon base for maximum rigidity; external stresses are not transmitted to the switch mechanism.

6. STEEL COVER. A snap-on steel cover provides full mechanical protection and magnetic shielding to the relay assembly; there is no magnetic interaction between adjacently positioned relays.

54 Different Mercury-Wetted or Dry Reed Relays . . . IN STOCK For Immediate Delivery!

In addition to the 14 MPC magnetic latching and power reed relays described on page 4, here are 40 different mercury-wetted and dry reed relays available for immediate delivery from stock . . . including many that other manufacturers custom-build!

SPECIFICATIONS

Class 102MPC Dry Reed Relay, Size 1—Contacts: SPST-NO (Form A); DC Power Required: ½ watt nom.; DC Resistance: see Table; Operating Time: 3 msec. (Aver.); Release Time: ½ msec. (Aver.); Contact Bounce: less than 1 msec. (Aver.); Contact Load Rating: 15 VA at 1 amp, max. or 250 VAC max., non-inductive load; Contact Resistance: 0.1 ohm; Life Expectancy: 20 million cycles; Insulation to Ground: 500 VAC RMS; Operating Position: Any; Ambient Temperature Range: -50°F. to +185°F.; Maintenance: None.

Class 102MPC Dry Reed Relay, Size 2—Same as Size 1, above, except for—Contacts: 3PST-NO (3 Form A); DC Power Required: ¾ watt nom.

Class 102MPC Dry Reed Relay, Size 3—Same as Size 1, above, except for—Contacts: 6PST-NO (6 Form A); DC Power Required: 1½ watt nom.

Class 103MPC Dry Reed Relay, Size 1—Contacts: SPDT (Form C) Single Side Stable*; DC Power Required: ½ watt nom.; DC Resistance: see Table; Operating Time: 2 msec. (Aver.); Release Time: ½ msec. (Aver.); Contact Bounce: 4 msec. on release, NC contact (Aver.); Contact Load Rating: 10 VA at ½ amp. max. or 250 VAC max., non-inductive load; Contact Resistance: 0.1 ohm; Life Expectancy: 25 million cycles; Insulation to Ground: 500 VAC RMS; Operating Position: Any; Ambient Temperature Range: -50°F. to +185°F.; Maintenance: None.

Class 103MPC Dry Reed Relay, Size 2—Same as Size 1, above, except for—Contacts: 2PDT (2 Form C) Single Side Stable*; DC Power Required: ¾ watt nom.

Class 103MPC Dry Reed Relay, Size 3—Same as Size 1, above, except for—Contacts: 4PDT (4 Form C); DC Power Required: 1½ watts nom.

Class 132MPC Mercury-Wetted Relay—Contacts: SPST-NO (Form A); DC Power Required: ½ watt nom.; DC Resistance: see Table; Operating Time: 2 msec. (Aver.); Release Time: 2 msec. (Aver.); Contact Bounce: None; Contact Load Rating: 50 VA at 3.0 amps. max. or 400 VAC max., non-inductive; Contact Resistance: 0.025 ohm max.; Life Expectancy: 1 billion cycles; Insulation to Ground: 500 VAC RMS; Operating Position: Upright, not more than 30° from vertical; Ambient Temperature Range: -37°F. to +185°F.; Maintenance: None.

Class 133MPC Mercury-Wetted Relay—Same as Class 132MPC, above, except for—Contacts: SPDT (Form C) Single Side Stable*; Contact

Load Rating: 50 VA at 2.0 amps, max. or 400 VAC max., non-inductive load.

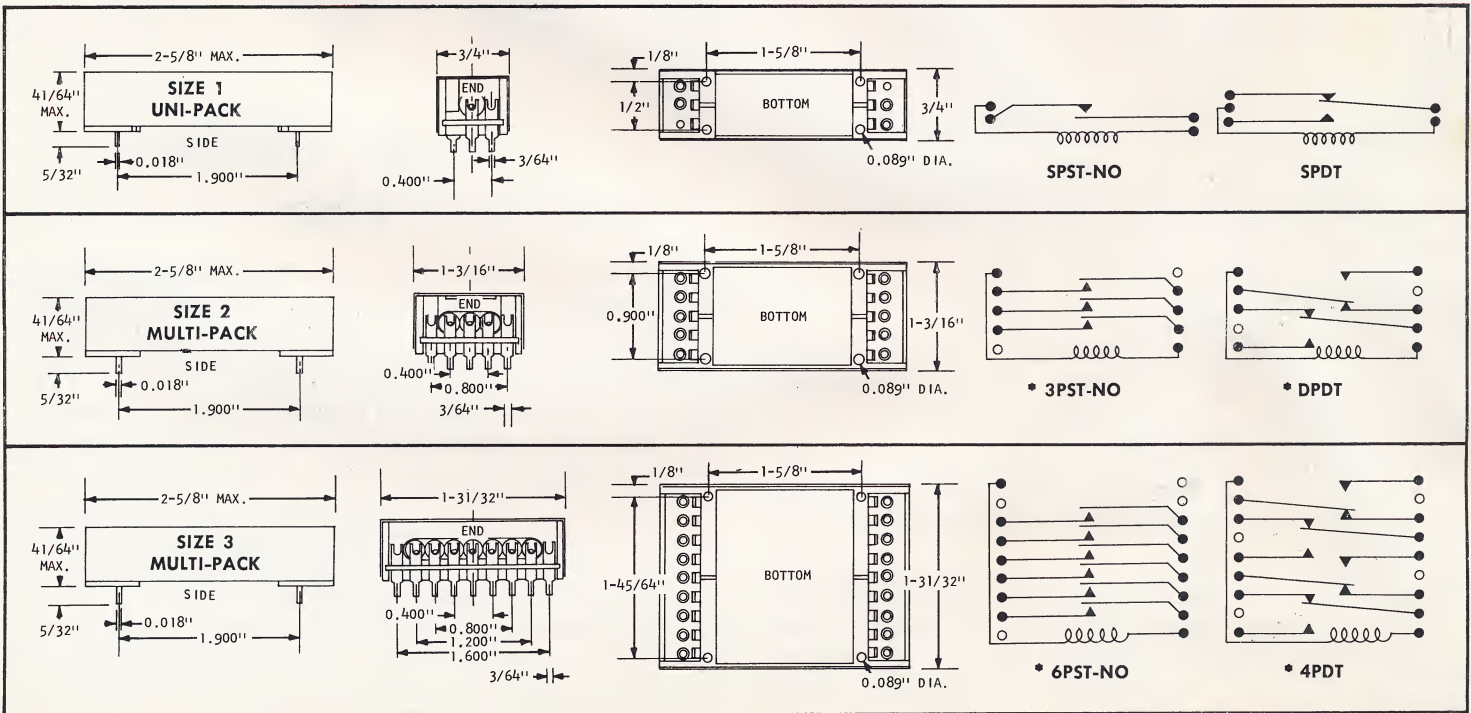
CATALOG NUMBER	CONTACTS	TYPE	SIZE	COIL DATA			NET EA 1 to 24
				MA	VDC†	OHMS	
W102MPCX-5	SPST-NO	Dry	1	140	—	30	3.29
W102MPCX-6	SPST-NO	Dry	1	—	6	70	3.29
W102MPCX-7	SPST-NO	Dry	1	—	12	250	3.29
W102MPCX-8	SPST-NO	Dry	1	—	24	1000	3.29
W102MPCX-9	SPST-NO	Dry	1	—	48	4000	3.46
W120MPCX-10	SPST-NO	Dry	1	9	—	7000	4.14
W102MPCX-48	3PST-NO	Dry	2	—	6	50	5.62
W102MPCX-49	3PST-NO	Dry	2	—	12	175	5.63
W102MPCX-50	3PST-NO	Dry	2	—	24	750	5.77
W102MPCX-51	3PST-NO	Dry	2	—	48	3000	5.97
W102MPCX-52	6PST-NO	Dry	3	—	6	25	9.18
W102MPCX-53	6PST-NO	Dry	3	—	12	100	9.30
W102MPCX-54	6PST-NO	Dry	3	—	24	375	9.35
W102MPCX-55	6PST-NO	Dry	3	—	48	1500	9.43
W103MPCX-1	SPDT	Dry	1	140	—	30	5.83
W103MPCX-2	SPDT	Dry	1	—	6	70	5.83
W103MPCX-3	SPDT	Dry	1	—	12	250	5.83
W103MPCX-4	SPDT	Dry	1	—	24	1000	5.83
W103MPCX-5	SPDT	Dry	1	—	48	4000	6.00
W103MPCX-6	SPDT	Dry	1	9	—	7000	6.68
W103MPCX-30	DPDT	Dry	2	—	6	50	8.33
W103MPCX-31	DPDT	Dry	2	—	12	175	8.33
W103MPCX-32	DPDT	Dry	2	—	24	750	8.47
W103MPCX-33	DPDT	Dry	2	—	48	3000	8.67
W103MPCX-34	4PDT	Dry	3	—	6	25	14.60
W103MPCX-35	4PDT	Dry	3	—	12	100	14.70
W103MPCX-36	4PDT	Dry	3	—	24	375	14.77
W103MPCX-37	4PDT	Dry	3	—	48	1500	14.88
W132MPCX-1	SPST-NO	Hg	1	140	—	30	5.83
W132MPCX-2	SPST-NO	Hg	1	—	6	70	5.83
W132MPCX-3	SPST-NO	Hg	1	—	12	250	5.83
W132MPCX-4	SPST-NO	Hg	1	—	24	1000	5.83
W132MPCX-5	SPST-NO	Hg	1	—	48	4000	6.00
W132MPCX-6	SPST-NO	Hg	1	9	—	7000	6.68
W133MPCX-1	SPDT	Hg	1	140	—	30	7.65
W133MPCX-2	SPDT	Hg	1	—	6	70	7.65
W133MPCX-3	SPDT	Hg	1	—	12	250	7.65
W133MPCX-4	SPDT	Hg	1	—	24	1000	7.65
W133MPCX-5	SPDT	Hg	1	—	48	4000	7.82
W133MPCX-6	SPDT	Hg	1	9	—	7000	8.50

†Voltage operated relays pull in at 85% of nominal voltage at 25°C Dry—Dry Reed; Hg—Mercury-Wetted Reed

*Single Side Stable—Armature contact releases from the operated position when coil current falls below the drop out value.

(Quantity Discounts Available on Request)

3 case styles—Dimensions and Stock Relay Schematics



Or, Write your own specifications on **Special Orders!**

The primary function of Magnecraft Electric Company is the development of precision, highly reliable relays, relays designed to meet specific application requirements.

54 of these reed relays have proved to have wide applications in many areas of electrical and electronic circuit design. To provide faster delivery of these relays, they have been assigned part numbers and maintained in stock for immediate delivery.

However, hundreds of variations of these stock relays are also readily available, on special order, to meet specific requirements not met by stock units. Those contact arrangements and coil characteristics that are commonly available are listed to the right. These variations from stock relays may be ordered by specifying the part number of the stock relay that most closely approximates the characteristics desired and by indicating the variation desired.

Variations other than those listed are also available. The state of the art of reed relay design is one of the most rapidly developing areas in the electrical and electronic fields. At Magnecraft, new answers to new problems are found daily. Therefore, if you don't see the relay you need, call on us. A detailed description of your specific requirements or design problems will receive prompt attention from Magnecraft's engineering staff to provide you with detailed recommendations.

CONTACT ARRANGEMENTS COMMONLY AVAILABLE ON SPECIAL ORDER

SIZE	DRY REEDS	MERCURY-WETTED
1	—	1 Form D
2	Form A up to 3A, Form C up to 2C and Form 1A1C	Form A up to 3A
3	Form A up to 7A, Form C up to 4C, Form 1A3C, Form 2A2C and Form 4A1C	Form A up to 7A

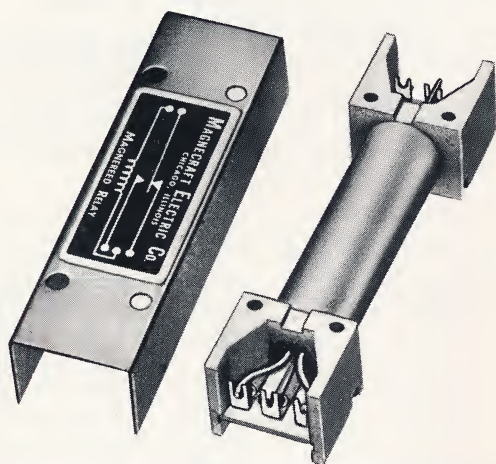
STANDARD COIL DATA

AWG WIRE SIZE	SIZE 1 SPST-NO & SPDT		SIZE 2 to 3PST-NO or DPDT		SIZE 3 to 7PST-NO or 4PDT	
	OHMS	TURNS	OHMS	TURNS	OHMS	TURNS
27	3	530	5	530	8	490
28	5	700	8	670	12	620
29	7	750	12	820	20	740
30	10	1000	20	1040	25	775
31	19	1300	32	1300	45	1200
32	30	1750	50	1700	70	1450
33	45	2000	70	2000	100	1800
34	70	2450	110	2500	175	2300
35	100	3000	175	3300	300	3000
36	175	3900	300	2800	375	4000
37	250	4500	450	5230	700	4600
38	450	6400	750	6500	1100	5700
39	700	7300	1200	8300	1500	5500
40	1000	9000	2000	10900	3400	10000
41	1900	13300	3000	12800	4800	12000
42	3000	16100	4400	14700	7800	15000
43	4000	18500	7200	18400	12000	18900
44	7000	24600	11000	24000	19000	24500

(Resistance values $\pm 10\%$, measured at 25°C.)

MPC Reed Relays Provide Virtually Unlimited Switching Combinations

103LMPC LATCHING REED RELAY



Ideal for memory applications, the 103LMPC Dry Reed Magnetic Latching Relay requires no coil current to hold either of two latching positions: with single wound coils, switching is achieved by reversing coil current polarity; with double wound coils having separate polarized windings, switching is achieved by use of two separate inputs.

SPECIFICATIONS

Contact Combination: SPDT, Form C, Break-before-make, Bi-Stable*

Operate Time: 2 msec. (average)

Contact Bounce: 2 msec. (average)

Operating Position: Any

Life Expectancy: 25 million cycles at rated load

Contact Load Rating: 10VA, 0.2 amp or 200 V max., non-inductive

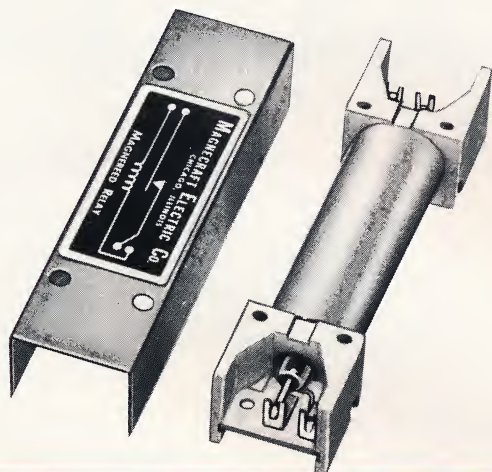
DC Operating Power: 150 mw nom.

Stock Part No.	† Coils—DC			Net Ea. 1 to 24
	MA	Volts	Ohms	
Single Wound Coils				
W103LMPCX-3	40	—	70	7.07
W103LMPCX-4	—	6	250	7.07
W103LMPCX-5	—	12	1000	7.07
W103LMPCX-6	—	24	4000	7.26
W103LMPCX-7	4	—	7000	8.01
Double Wound Coils				
W103LMPCX-8	80	—	30/30	8.22
W103LMPCX-9	—	6	120/120	8.33
W103LMPCX-10	—	12	460/460	8.33
W103LMPCX-11	—	24	1800/1800	9.00
W103LMPCX-12	8	—	3000/3000	10.04

See page 2 for Dimensions and Schematic

*Bi-Stable—Armature contact remains in the last operated position until coil polarity is reversed.

3 Amperes, SPST-NO 102RMPC POWER REED RELAY



The new 102RMPC Power Reed Relay provides the printed circuit design engineer with the first reed relay capable of switching up to 100 watts at 3 amps and within 2 msec.

A member of the Magnecraft MPC Reed Relay family, 102RMPC is built to the same high standards and can be combined, on special order, with itself or other dry and mercury-wetted reed relays.

Requiring 1/2 watt nominal operating power and rated 100VA, 3 amps or 250 volts maximum, the 102RMPC Power Reed Relay is stocked in four standard coil voltages; others are available on special order (see page 3).

CATALOG NUMBER	† VDC	OHMS	NET EA. 1-24
W102RMPCX-1	6	70	8.73
W102RMPCX-2	12	250	8.76
W102RMPCX-3	24	1000	8.81
W102RMPCX-4	48	4000	9.10

†Voltage operated relays pull in at 85% of nominal voltage at 25°C

See page 2 for Dimensions and Schematic

Write for our 50-page catalog of Magnecraft relays . . .
hundreds available from stock,
thousands more on special order!

MAGNECRAFT ELECTRIC COMPANY

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Chicago, Illinois 60630

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